REMARKS

Upon entry of this amendment, Claims 8-11, 15-20, 23, 25, 29-33, and new Claim 35 constitute the pending claims. Claims 12 and 13 are directed to non-elected inventions, and together with Claims 14 and 34, are canceled without prejudice. Applicants reserve the right to prosecute claims of identical or similar scope to the canceled claims or claims prior to amendment in future continuation or divisional applications.

Applicants have amended the claims and added new Claim 35 to further clarify the subject matter claimed. Support can be found throughout the specification, including the original claims. *See*, for example, page 3, lines 24-25; page 6, 2nd full paragraph, and original Claim 14. No new matter is introduced.

Applicants note that the unity of invention rejection with respect to Groups IV and V has been withdrawn, and thus all pending claims, *i.e.*, Claims 8-11, 15-20, 23, 25, 29-33, and 35, are currently under examination.

Applicants note that the IDS filed on March 6, 2006 has been considered by the Examiner. Applicants also note that the drawings filed on December 10, 2004 have been accepted by the Examiner.

Applicants respectfully request reconsideration in view of the following remarks. Issues raised by the Examiner will be addressed below in the order they appear in the Office Action.

Claim rejections under 35 U.S.C. § 112, second paragraph

Claims 8-11, 14, 16-20, 23, 25, 29-31, and 33-34 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, the Office Action argues that these claims are "incomplete for omitting essential steps, such omission amounting to a gap between the steps," because the methods "do not recite what the comparison (of the measured and the reference values) is supposed to achieve, (and) thus the method steps do not complete the goal of the preamble." The Examiner argues that the omitted steps are a positive recitation of what the comparison step

achieves. The Examiner further argues that the claims do not recite particular patient population, and requests the claims to recite the patient population targeted.

While not acquiescing in the reasoning of the Office Action and solely to advance prosecution, Applicants have amended the independent claims to positively recite the goals to be achieved by the methods, and "subject in need thereof."

Reconsideration and withdrawal of the rejections based on 35 U.S.C. § 112, second paragraph are respectfully requested.

Claim rejections under 35 U.S.C. § 112, first paragraph - enablement

Claims 8-11, 14-20, 23, 25, 29, 30, and 32-34 are rejected under 35 U.S.C. § 112, first paragraph, because the specification allegedly "(enables) methods for assessing feeding and/or weight gain, predicting risk, diagnosing obesity and/or energy imbalance in an individual at risk for energy imbalance and/or obesity comprising measurement of a-MSH and desacetyl-a-MSH in a sample, calculating the ratio between desacetyl-α-MSH and α-MSH, and comparing the value of the ration with a reference value, wherein a higher desacetyl-α-MSH/α-MSH ratio in the sample is predictive of a risk of energy imbalance and obesity," but does not reasonably provide enablement for using the ratio of any two melanocortin peptides.

While not acquiescing in the reasoning of the Office Action and solely to advance prosecution, Applicants have amended the independent claims to recite measuring, calculating, and comparing desacetyl-α-MSH/α-MSH ratio with that of a control, thereby overcoming the rejection.

Regarding the term "the profile of response parameters" in Claims 15 and 33, the Office Action asserts that "only proteins involved in the melanocortin peptidergic axis would be informative with regard to predicting risk or diagnosing obesity and/or energy imbalance in the instantly claimed method invention."

Since the claims have been amended to recite measuring desacetyl-α-MSH/α-MSH ratio, the profiles of response parameters are necessarily those responsive to the desacetyl-α-MSH and/or α-MSH peptides. Thus this rejection is also overcome.

Regarding the term "biological response system" in Claim 15, the Office Action argues that the term would encompass biological response systems "that would not be capable of assessing feeding and/or weight gain, predicting risk, diagnosing obesity and/or energy imbalance."

To further clarify the subject matter claimed, Applicants have amended Claim 15 to require the biological response system to be "capable of predicting the risk of developing obesity, or diagnostic of obesity, imbalance in energy homeostasis or disturbance in feeding/weight gain patterns," thereby overcoming this rejection.

The Office Action further argues that Claims 25, 29, and 30 are not enabled with respect to the use of any tissues, because the state of the art is allegedly unpredictable in this respect. The only reason advanced in support of this argument is that Katsuki supports the enablement of the claimed methods, while Harrold (*Peptides* 24: 397-405, 2003) purportedly calls into doubt the use of hypothalamic tissue, because Harrold allegedly shows that elevated hypothalamic levels of AGRP, but not α-MSH or POMC, may indicate obesity or energy imbalance. Relating to this, the Office Action also rejects Claim 31, because "Harrold *et al.* (teaches) that neither α-MSH nor POMC measured in hypothalamic tissue are indicative of obesity or energy imbalance."

Applicants respectively disagree. Applicants note that the instant claims recite the use of desacetyl-α-MSH/α-MSH ratio, not the concentration or level of desacetyl-α-MSH or α-MSH. Harrold apparently only measured α-MSH concentration, but is silent with respect to desacetyl-α-MSH concentration, and more importantly, Harrold is silent with respect to the ratio of desacetyl-α-MSH/α-MSH. Applicants note that an "unchanged concentration of α-MSH" does not necessarily relate to a high or low ratio of desacetyl-α-MSH/α-MSH, because the ratio also depends on the concentration of desacetyl-α-MSH, which Harrold does not measure. Therefore, the findings in Harrold cannot be used to contradict the claimed invention.

In contrast, Applicants have shown, for example, in Example 3 that the hypothalamus is responsive to α-MSH and desacetyl-α-MSH peptides.

Pursuant to MPEP2164.04, "[i]n order to make a rejection, the examiner has the initial burden to establish a reasonable basis to question the enablement provided for the claimed

invention. *In re Wright*, 999 F.2d 1557, 1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993) (examiner must provide a reasonable explanation as to why the scope of protection provided by a claim is not adequately enabled by the disclosure). A specification disclosure which contains a teaching of the manner and process of making and using an invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented must be taken as being in compliance with the enablement requirement of 35 U.S.C. 112, first paragraph, unless there is a reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support. ... As stated by the court, 'it is incumbent upon the Patent Office, whenever a rejection on this basis is made, to explain why it doubts the truth or accuracy of any statement in a supporting disclosure and to back up assertions of its own with acceptable evidence or reasoning which is inconsistent with the contested statement. Otherwise, there would be no need for the applicant to go to the trouble and expense of supporting his presumptively accurate disclosure.' 439 F.2d at 224, 169 USPQ at 370." (emphasis added).

Because the cited references either directly supports or does not contradict the claimed invention, Applicants submit that the Examiner has failed to meet the initial burden of establishing a reasonable basis to question the enablement provided for the claimed invention, as is required by the controlling case law.

Therefore, in view of the foregoing, reconsideration and withdrawal of the enablement rejections are respectfully requested.

Claim rejections under 35 U.S.C. § 102(b)

Claims 8-11, 14, 16-20, 23, 25, 29, 31, and 34 are rejected under 35 U.S.C. 102(b), as allegedly being anticipated by Mauri *et al.* (*Horm. Res.* 34: 66-70, 1990, or "Mauri"). The Office Action argues that, for prior art purpose, the claims are broadly interpreted as "the measurement of two melanocortin peptides in a sample, calculating the ratio, and comparing the value of the ratio with a reference value in any patient population and for any purpose." Therefore, it is argued that Mauri anticipates the claimed methods, since it teaches all the method steps, even if it is for a completely different purpose.

As argued above, Applicants have amended the claims to further clarify the subject matter claimed. The amended claims recited the specific patient population – those patients

"in need thereof" with respect to the specific purposes recited in the respective method claims.

Applicants submit that Mauri cannot anticipate the presently claimed invention. Specifically, Mauri teaches the measurement of α-MSH and adrenocorticotropin (ACTH) in the context of a completely unrelated process - the ovulatory process, particularly in the early and late follicular phases and in the early luteal phase of a menstrual cycle. Mauri shows that α-MSH is present in human plasma and that there is great variability between α-MSH levels in the plasma of subjects. Mauri makes the observation that the ratio between desacetylated and acetylated form is similar in the follicular phase, but different in the luteal phase. Importantly, Mauri does not teach or suggest that the desacetyl-α-MSH/α-MSH ratio can be used as an indicator, or be diagnostic, of any disorder, much less disorders of metabolism and energy homeostasis leading to imbalance in feeding or weight gain pattern, predictive of the risk of obesity, or diagnostic of obesity in a subject.

Thus Mauri belongs to an entirely different field of endeavor, and the Mauri method, even if sharing some or even all of the method steps, could not be considered as being relevant to the presently claimed invention, and thus cannot anticipate the presently pending method claims.

Therefore, reconsideration and withdrawal of the rejection under 35 U.S.C. 102(b) are respectfully requested.

CONCLUSION

For the foregoing reasons, Applicants respectfully request reconsideration and withdrawal of the pending rejections. Applicants believe that the claims are now in condition for allowance and early notification to this effect is earnestly solicited. Any questions arising from this submission may be directed to the undersigned at (617) 951-7000.

Applicants believe no fee other than those authorized in the accompanying Amendment Transmittal is due in connection with the filing of this response. If, however, any fee is due, please charge the fees to our **Deposit Account No. 18-1945**, from which the undersigned is authorized to draw under order number **BSWV-P01-007**.

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Respectfully submitted,

By_____

Yu Lu, Ph.D., J.D.
Registration No.: 50,306
ROPES & GRAY LLP
One International Place
Boston, Massachusetts 02110-2624
(617) 951-7000
(617) 951-7050 (Fax)
Attorneys/Agents For Applicant